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Castor, Durante, Lacuna, Turner, Tabernaemontanus, Lobelius, Thalius, Gesner, Anguillara, Columna, Brunfels, Pliny, 25:6, etc., etc., *Agrimonia* Brunfels, Dodonaeus, Lonicer, Caesalpinus, Linn. Gen., 138 (1737), 206 (1754) Tours., Els., 251 (1694), I. R. H., 301 (1700).

***Eupatorium molle* (T. and G.).**

Agrimonia mollis Britton, Bull. Torr. Cl., 19, 221 (1892).
Agrimonia Eupatoria var. *mollis* T. and H. Fl. Am., 1. 431 (1840).

Found in Lake Co. 11636 Mineral Springs, 11442 S. E. Notre Dame, 10303 S. South Bend.

***Eupatorium hirsutum* (Muhl.).**

Agrimonia Eupatoria var. *hirsuta* Muhl., Cat., 47 (1813),
Agrimonia hirsuta (Muhl.) Bicknell, Bull. Torr. Cl., 23, 509 (1896),
Agrimonia gryposepala Wallr., Beitr. Bot., 1. 49 (1842).

Lake Maxinkuckee (Clarke), Porter Co., (Deam), 11260,
 11698 S. South Bend, Ind., 1886 Notre Dame, 10465 Bertrand,
 Mich., Berrien Co.

***Eupatorium rostellatum* (Wallr.)**

Agrimonia rostellata (Wallr., Beitr. Bot., 1. 42 (1842), *Agrimonia parviflora* DC. Prod., 2, 588 (1825) not Soland (1789).

11700 S. South Bnd, Ind.

***Eupatorium parviflorum* (Soland.).**

Agrimonia parviflora Soland., Ait., Hort. Kew., 2, 130 (1789).
 Millers (Umbach), Michigan City (C. D. Mell), Lake Co.
 (Deam.)

(To be continued.)

QUAMOCLIT SLOTERI.

BY J. A. NIEUWLAND.

Whatever view be taken of the status of the remarkable plant produced by Mr. Logan Slotter in crossing *Quamoclit coccinea* (Linn.) Britton (*Impomoea coccinea* Linn.) with *Quamoclit vulgaris* Choisy (*Impomoea Quamoclit* Linn.) we have beyond doubt a plant which if found in the field without any knowledge as to its origin, we must admit that the most conservative botanist would scarcely hesitate to report it as a new species. The hybrid in question breeds true to type and was produced between the former as

pistil parent and the latter as pollen parent. The plant differs in having laciniately cleft leaves with linear to lanceolate divisions very irregular so that few are quite alike in shape. The venation in the upper part of the leaf is of the pinnate type but the leaf blade as a whole is broader than long, the basal veins branching on the pedate plan. The base is obtuse and without mesophyll on the margin without, as the veins proceed from the apex of the peduncle directly. This peculiarity is probably due to the tendency of the product to attempt to follow as nearly as may be, the pinnate leaf type of *Quamoclit vulgaris* and at the same time also that of *Quamoclit coccinea*, the apical lobe usually being the broadest. The sepals are rounded to obtuse and even retuse (mucronate) and about as long as in the former plant but broader. The corolla is of the same color, roundish pentagonal, shaped nearly as in the latter species the flowers being much larger than in either parent. The flowers are as numerous to the cluster as in *Q. coccinea*, the peduncles longer, the petioles as long. Though the plant seems not notably prolific in moister situations the abundance of flowers is quite remarkable.

The plant is a good and not very common example of what has been called a "species hybrid" as distinguished from a Mendelian hybrid, or a "mutant." Professor E. C. Jeffrey¹ considers mutants and we would infer also "species hybrids" as just "crypto hybrids," because as the result of his investigations these plants are notably devoid of perfectly fertile numerous microspore cells. As the plant in question does not produce much seed such might probably be the case with its pollen. The test for hybridism according to the writer is found in the fact that partial infertility is the characteristic of the plants supposed to be mutants even when they reproduce at all, thus reducing these plants to the condition practically of sterile or partially sterile hybrids as was maintained by the English horticulturalists of a century ago.² Herbert,³ however, at the same time having produced hybrids that bred true to type and differed from their parents by characters notably different so as to be considered specific differentiations, viewed these products as new species in opposition to the general opinions of his day. Not having examined the pollen of *Quamoclit*

¹ Jeffrey, E. C., Spore Conditions in Hybrids and the Mutation Hypothesis of De Vries, Bot. Gaz. LVIII, 322 (1914).

^{2, 3} See Transactions Hort. Soc., London Vols. I—VII (1812 et seq.)

Sloteri no opinion could be proposed here, but it may be suggested that the apparent infertility or partial fertility of the plant may be due perhaps also to the fact that it has not been grown in conditions suitable. Its production of flowers increases very noticeably as also its seed product by reducing its moisture. The plant might perhaps be quite fertile under conditions which may have not as yet been perfectly determined. Perhaps too under natural conditions comparatively few new species have survived, apparently because the conditions for their proper persistence were not at hand.

Since the plant, *Quamoclit Sloteri* possesses characters that are notable enough to make it seem specifically distinct from either parent and from all of the members of the genus; why should the knowledge of its ancestry militate against it as deserving a "species" name in binary nomenclature? With its character of breeding true it deserves to be ranked as a new plant as truly as the mutants or new species published under *Oenothera* during the last decade. It is likely that many species unequivocally ranked as such found in the field, have fewer characters of distinction than the plant in question.

In reading over a description of a certain *Quamoclit multifida* Raf. (1835) I was forcibly struck by the fact that the characterization of this plant is practically identical with that of the plant produced by Mr. Sloter, from whom the details of the origin of *Quamoclit Sloteri* were directly obtained. The following description from Rafinesque's New Flora of North America, Part IV, p. 57 (1836) seems so remarkably applicable that one would fain believe that that keenly observant and brilliant botanist of nearly a century ago had in mind and actually seen somewhere in gardens of his day a plant identical with the Scarlet Climber just described. It is not impossible that it has appeared spontaneously in gardens where the two parents were often grown together. The whole description of Rafinesque is here given so that it may be compared by the reader, who may judge for himself as to their identity. To us there seem little doubt that Rafinesque knew of a plant whose description agrees in our opinion quite well with that of the plant hybrid under discussion.

"976 *Quamoclit multifida* Raf. Twining, smooth, leaves multifid, lacinate, base truncate, sinuses obtuse, segments linear and lanceolate acute, peduncles 3-5 flors, equal to petiols, calix acute—a

curious sp. deemed a garden hybrid produced by *Q. coccinea* and *Q. pinnata*, leaves variously cut few alike, some reniform with shorter cuts, flowers handsome, large purple, tube clavate, limb flat stellate pentagone, stamens exserted. Seen alive in gardens, where sometimes spontaneous."

The *Quamoclit* *pinnata* Raf. above is certainly *Ipomoea Quamoclit* Linn., Sp. Pl., 159 (1753), the only pinnate leaved *Quamoclit* known by him at the time, and it is moreover the oldest binary application of the plant under the genus *Quamoclit* antedating Choisy's name *Quamoclit vulgaris*¹ nine years, unless of course one admits the stupid duplicate binaries like *Quamoclit Quamoclit*.

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CROCION ACHLYDOPHYLLUM (GREENE.)

An Ecological and Anatomical Study.

BY R. M. KACZMAREK.

In "Studies in Viola I" in the AMERICAN MIDLAND NATURALIST in the February issue of 1914 we intimated that the presence or absence of cleistogamous flowers in plants in the genus *Viola*, as hitherto held by most botanists, is becoming a recognized character for classification. It was undertaken to segregate the plants of this group taking into consideration their habit and the number of stamens in the so-called "apetalous flowers" when present. On account of these important characters of distinction we proposed the segregates on the basis of this difference.

We proposed the genus *Crocion* Nieuwland and Kaczmarek² for the stemmed yellow violets of which *V. pubescens* (Ait.)³ is the type. In our opinion the western plant confused by botanists under the name of *V. eriocarpa* (Schwein.)⁴ is really *V. achlydo-*

¹ Whether the *Ipomoela Cardinalis* (Cardinal Creeper) offered by A. Boddington, of New York, is the same as *Quamoclit Sloteri*, I have been unable to find.

² Am. Mid. Nat. III., 8, p. 207-217 (1914).

³ Ait. Hort. Kew. 3, p. 290 (1789.)

⁴ Schwein. Am. Journ. Sci. 5, p. 75 (1822).